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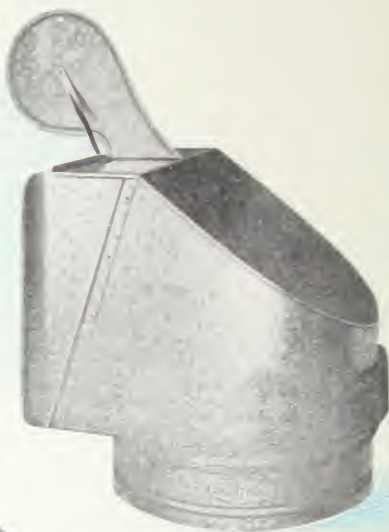
The Gospel of FRESH AIR

Swartwout



Copyright 1914
by
The Ohio Blower Company
Cleveland, Ohio

“SWARTWOUT”
Rotary Ball Bearing
VENTILATOR



Patented
April 15, 1913
May 28, 1914
Other Patents
Pending



THE OHIO BLOWER COMPANY
CLEVELAND, OHIO

The Gospel of FRESH AIR



LABOR and the Laborer, human life, comfort and health are daily becoming more sacred. At the same time, the practical dollars and cents value of proper ventilation, as it affects health and increased efficiency, is an acknowledged fact.

John R. Allen, Professor of Mechanical Engineering, University of Michigan, gives the following table of change of air necessary per hour—

Workshops and Bar-

| | | |
|---------------------------|------|--------------------|
| racks | 3000 | cu. ft. per person |
| Office Rooms | 1800 | " " |
| Schools | 2400 | " " |
| Hospitals | 3600 | " " |
| Churches, Theatres | 2000 | " " |
| Dining Rooms | 1800 | " " |
| Toilet and Bath | | |
| Rooms | 2400 | " " |

The proper percentage of Oxygen is absolutely essential to the most rapid and effective action of both body and brain. That ordinary ventilation does not afford that percentage is too well known to need corroboration here.

In a recent pamphlet,—“The Prevention of Industrial Accidents,”—Frank E. Law, M. E., and William Newell, A. B. M. E., say:—“A continuous supply of pure air is no doubt of greater importance from the stand-

The Gospel of Fresh Air



48 Inch

“SWARTWOUT”

Rotary Ball Bearing

Ventilator

Ventilating 6 Stories
of Factory Toilets for
the Warner & Swasey
Co., Cleveland

No Cost to Operate

point of maintenance of health than it is from the standpoint of prevention of accident, but the two are related. Whatever lowers the vitality of the workman decreases his alertness and watchfulness to avoid accident. Impure air, gases, vapors, dust and smoke, therefore, all *increase the chance of accident* in addition to imperiling the health of workmen."

Another evil effect of poor ventilation is the necessity for raising the room temperature. This necessity arises from the reduction in vitality due to lack of oxygen and brings in its train the listless action of a hot heavy atmosphere.

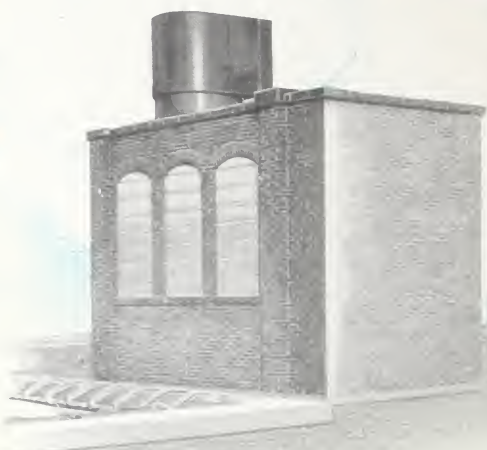
A man's efficiency, his percentage of productive labor, depends largely upon atmospheric conditions. It is an authenticated fact that the *normal* producing capacity of an individual will vary at least 20 per cent according to proper or improper ventilation. *Live* air, air vital with oxygen, gives the energy and quick action of efficiency raised to the highest pitch.

The cash value of good ventilation should be apparent to every manufacturer and employer. There is plenty of evidence to prove that an abundance of fresh air brings direct returns in increased efficiency of production.

In the operating room of the New England Tel. & Tel. Co., at Cambridge, Mass., it was found that before a ventilating system was installed, 4.9% of the operators, 50 to 60 girls, were absent during the winter of 1906, and 4.5% absent in 1907. A simple ventilating system which cost only \$75, reduced the percentage to 1.9% during the winter of 1908. *There were no other changes in conditions or personnel.*

Again in a certain printing establishment in New York a ventilating system installed

The Gospel of Fresh Air



60 Inch

“SWARTWOUT”

Rotary Ball Bearing

Ventilator

Ventilating 16 Stories
of Toilets in the Rocke-
feller Building, one of
Cleveland's Sky Scrap-
ers

by order of the State Department of Labor caused the proprietor to say that an order from the State Department would never have been necessary if he had known beforehand what remarkable results a ventilating system would produce in his plant.

He frankly admitted that his men quit work at night in a much better condition and that the percentage of actual sickness was greatly reduced. A further gain was made in the reduction of "costs" of typesetting and correction of errors.

The well known case of the United States Pension Bureau is another instance of improved health because of changed conditions. The removal of the offices of the Pension Department from scattered and poorly-ventilated quarters into new and well ventilated rooms reduced the number of days absence due to illness from 18,736, an average for several successive years, to 10,114.

The "Swartwout" Rotary Ball Bearing Ventilator has kept step with the progress of the age and meets the modern demand for perfect ventilation in shop and factory, in office and bank. Its success is the result of a scientific study of the theory of ventilation combined with years of practical experience in ventilator manufacture.

"Swartwout" Stationary Ventilators of various designs are already well known but the *new "Swartwout" Rotary Ball Bearing* type is far superior to *any* stationary ventilator.

It is the simplest ventilator made—nothing to get out of order—and it is the most easily regulated: merely altering the position of the Louvers or Dampers regulates the flow of air.

The Gospel of Fresh Air



"SWARTWOUT"

Rotary Ball Bearing
Ventilators

Used for Exhausting
Smoke and Gases from
Core Ovens of The
Ferro Machine and
Foundry Co., Cleve-
land, Ohio

The Ohio Blower Co., Cleveland

The Swartwout

SWARTWOUT'S Rotary Ball Bearing Ventilator

Ventilator

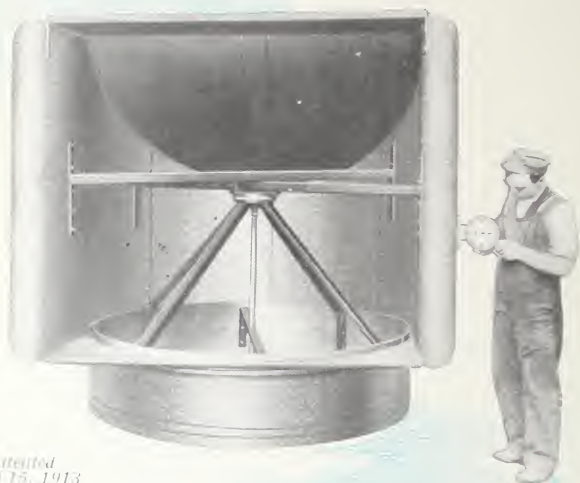
Increased Capacity The "Swartwout" Rotary Ball Bearing Ventilator handles from 50% to 300% more air than any stationary ventilator.

Principle of Operation This greatly increased capacity is obtained through the application of a new principle of operation:—That of the partial vacuum, which is described further on. Consequently this ventilator is not dependent upon a difference in temperatures within and without, as is the case with the ordinary ventilator. With the "principle of the chimney," upon which most ventilators are constructed, air will flow out *only* when its temperature is considerably higher than that of the outdoor air. It is self-evident that when ventilation is most needed—in hot weather—the temperature within and without is so nearly uniform as to make the flow of air "problematical."

Continuous Operation The fact that Government Stations seldom report a Minimum Wind Velocity anywhere in the country of less than four miles per hour makes it clear that the "Swartwout" is *always* operating to remove air, whether it be warm or cold.

Action In action the "Swartwout" is illustrated by the movement of a railroad train. At the end of the rear coach, the partial vacuum causes air to rush in to restore normal pressure; the rapid movement of the air is shown by the strength of the suction which draws papers, dust, etc., in its wake.

The Gospel of Fresh Air



Patented
April 15, 1913
May 28, 1913
Other Patents
Pending

One of Two 72 Inch

14 Gauge Copper

“SWARTWOUT”

Rotary Ball Bearing

Ventilators

furnished The Hollingsworth
and Whitney Co., Waterville,
Maine—1913

It required less than 2 oz. of
pressure of standard Postal
scale to revolve this Swart-
wout Ventilator.

The Ohio Blower Co. Cleveland

Time Right Angle Turn

To still further increase the effectiveness of the "Swartwout," it is so designed that it offers the least possible obstruction to air flow. The air makes but one right-angle turn—and that of large radius. With the Circular Rimbound Types, the air current must change its direction twice at right-angles before escaping. The "Swartwout" swings with every change in the direction of the wind. Consequently the entire area of opening is always efficient, and no part of either Ventilator or Air Shaft is ever rendered inoperative. The wind always blows *from*, never *into* the Ventilator.

Self Return Current

In some makes of the Circular Rimbound Types, especially those having a Flat Damper, a portion of the air, instead of escaping freely, is deflected by the Damper when partially closed and returned to the building. With the "Swartwout" Rotary Ball Bearing Ventilator, return currents are absolutely impossible.

Regulation

In all sizes of the "Swartwout" the Louvers or Dampers are so pivoted that they are easily adjusted by means of brass chains running over brass pulleys. In this respect it is far in advance of the Stationary Ventilators having heavy Dampers. In the large sizes these heavy dampers require counterweights which add to the difficulty of operation and in case of corrosion, become a source of danger.

Storm Proof Feature

The "Swartwout" is of the same diameter as the opening in the roof. It is absolutely storm proof, and cannot become clogged by ice or snow. If dampers remain open very long at a time and collect dust,

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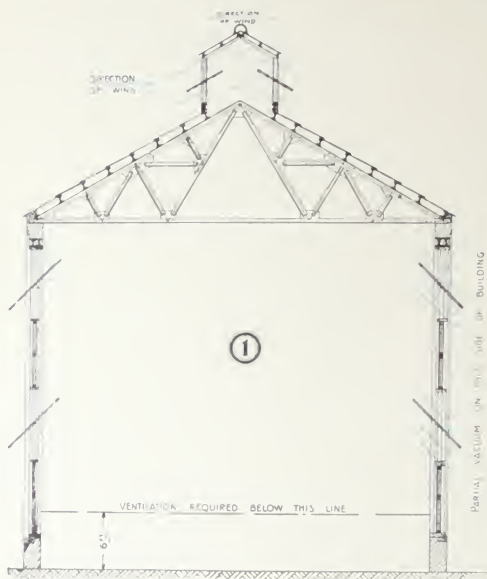


Illustration Showing Defective Factory Ventilation

It is apparent that all air movement is at top of building while a stratum of "dead air" hangs over and in the part occupied by workers.

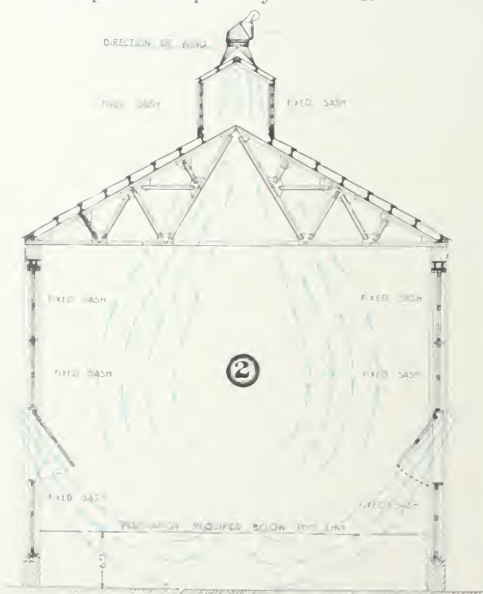


Illustration Showing Scientific Factory Ventilation

Note movement of air where employees work; no opportunity for formation of stratum of Carbonic Acid Gas.

sudden closing causes the dust to be scattered outside the building. *It cannot enter the Ventilator.*

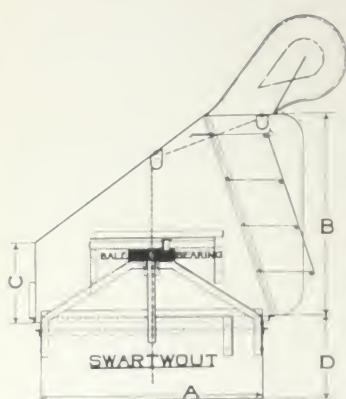
Construction The "Swartwout" Rotary Ball Bearing Ventilator is made of the most durable metals obtainable and our special non-corrosive treatment gives it rust-resisting properties far superior to those used in other ventilators. The "Swartwout" is practically indestructible.

Skylight The construction of the "Swartwout" is such that a Glass Top of large area can readily be substituted for the Metal Top, thus making a combination Skylight and Ventilator. The top is pitched thus furnishing a "Self Cleaning" Glass Top. When so used, the closing of the dampers positively will not shut out light because they are located in the vertical side away from the Air Shaft. This special feature is of great importance in stormy weather when light is most needed.

Ball Bearings The main portion of this ventilator is suspended on a construction of steel channels and angle irons, which revolve on Phosphor Bronze Bearings and Composition Balls placed centrally within the ventilator. The Bearings are non-corrosive, of large size to insure perfect balance. They are frictionless in operation, and are entirely enclosed. The joint is machined so accurately that there is no possibility of dust reaching the Bearings. Bearings and Balls are made of a hard composition and are *positively non-corrosive*.

Louvers or Dampers The Louvers or Dampers are so constructed and hinged together that they close simultaneously by gravity. They are opened by a chain from within.

The Gospel of Fresh Air



Dimensions
in Inches

"SWARTWOUT"

Rotary Ball
Bearing
Ventilator

Table of Weights and Gauges, Dimensions in Inches, Price List and Code Word, Etc.

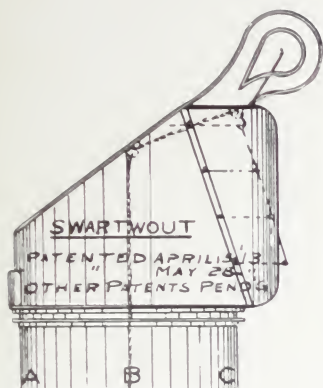
| A | B | C | D | Gauge Iron | Wt. of Copper |
|----|--------------------------------|---------------------------------|--------------------------------|---------------|------------------|
| 10 | 9 ¹ / ₈ | 4 ¹ / ₄ | 4 ¹ / ₂ | 24 | 18 oz. |
| 12 | 11 | 5 | 4 ¹ / ₂ | 24 | 18 " |
| 14 | 12 ⁷ / ₈ | 5 ³ / ₄ | 4 ¹ / ₂ | 24 | 18 " |
| 16 | 14 ³ / ₄ | 6 | 6 ¹ / ₄ | 24 | 18 " |
| 18 | 16 ¹ / ₂ | 6 ⁵ / ₈ | 6 ¹ / ₄ | 24 | 18 " |
| 20 | 18 ¹ / ₂ | 7 ⁹ / ₁₆ | 6 ¹ / ₄ | 24 | 18 " |
| 24 | 22 | 9 | 6 ¹ / ₄ | 24 | 18 " |
| 30 | 27 ¹ / ₂ | 11 ¹ / ₁₆ | 11 ¹ / ₄ | 22 | 20 " |
| 36 | 33 | 13 ¹ / ₂ | 11 ¹ / ₄ | 22 | 24 " |
| 42 | 33 ¹ / ₂ | 15 ³ / ₄ | 11 ¹ / ₄ | 20 | 26 " |
| 48 | 44 | 18 ⁷ / ₈ | 11 ¹ / ₄ | 20 | 26 " |
| 54 | 49 ¹ / ₂ | 20 ¹ / ₄ | 13 ³ / ₄ | 20 | 28 " |
| 60 | 55 | 22 ¹ / ₂ | 13 ³ / ₄ | 20 | 28 " |
| 66 | 60 ¹ / ₂ | 24 ³ / ₄ | 13 ³ / ₄ | 20 | 28 " |
| 72 | 66 | 27 | 13 ³ / ₄ | 20 | 28 " |

| A | Net Weight | Crated Weight | Price | Code Word |
|----|---------------|------------------|---------|-----------|
| 10 | 12 | 32 | \$10.00 | Rosy |
| 12 | 16 | 40 | 10.00 | Rotary |
| 14 | 32 | 53 | 15.00 | Rotate |
| 16 | 48 | 75 | 20.00 | Rotula |
| 18 | 55 | 80 | 25.00 | Rotund |
| 20 | 65 | 95 | 30.00 | Rouge |
| 24 | 90 | 125 | 35.00 | Round |
| 30 | 125 | 175 | 50.00 | Rause |
| 36 | 196 | 270 | 75.00 | Rouge |
| 42 | 248 | 345 | 105.00 | Rover |
| 48 | 337 | 440 | 120.00 | Rowel |
| 54 | 452 | 590 | 140.00 | Royal |
| 60 | 667 | 735 | 160.00 | Rals |
| 66 | 710 | 825 | 180.00 | Ruddle |
| 72 | 800 | 960 | 200.00 | Ruddy |

Discount on Application

Plate Fourteen

The Ohio Blower Co. Cleveland



Additional
Data on
"SWARTWOUT"
Rotary Ball
Bearing
Ventilators

| No. of Read | A | B | C |
|-------------|-----|-----|-----|
| 1 | 440 | 250 | 320 |
| 2 | 417 | 303 | 340 |
| 3 | 395 | 245 | 290 |
| 4 | 340 | 365 | 350 |
| 5 | 398 | 317 | 370 |
| Av. | 398 | 296 | 334 |

$$\frac{A+B+C}{3} = 343 \text{ Ft. Per Minute}$$

| Size of Vent. | Cu. Ft. Per Minute | Size of Vent. | Cu. Ft. Per Minute |
|---------------|--------------------|---------------|--------------------|
| 12 | 450 | 36 | 2550 |
| 14 | 510 | 42 | 3400 |
| 16 | 590 | 48 | 4450 |
| 18 | 650 | 54 | 5500 |
| 20 | 800 | 60 | 6850 |
| 24 | 1100 | 66 | 8250 |
| 30 | 1700 | 72 | 9850 |

Temperature Outside 30° Inside 60°

All readings in Ft. Per Min.

Average wind velocity 45 ft. per min. or 5 miles per hr.

NOTE—A B & C show position of Anemometer during test.

When specifying, inquiring or ordering state character and pitch of roof and whether ventilator will rest on peak or slope of roof.

Above data from actual anemometer reading—not a laboratory test.

The Gospel of Fresh Air

Advertisement

SWANWELL'S Rotary Fan Ventilator

Patented April 15, 1913; May 28, 1913. Other Patents Pending

1st. Higher Efficiency than Stationary Ventilators. Ventilates under *any* wind velocity. This means fewer or smaller ventilators and continuous operation.

With *no* wind velocity it is more efficient than any Stationary Ventilator, because in it the Air takes only one Right-Angle to escape.

2nd. Absolutely Storm-Proof.

3rd. Ventilator same diameter as opening in roof.

4th. Pivoted dampers—dampers on all sizes operating with equal ease.

5th. No counterweights on damper in any size : hence no danger of injury to Workmen by dropping inside building.

6th. Made with Pitched Glass Top. The only Self-Cleaning Glass Top Ventilator of any type.

7th. Regularly made of the best Rust Resisting Galvanized Sheet Metal obtainable. Copper or other material when specified.

8th. Fitted with Phosphor Bronze Bearings turning on Bell Metal Balls. Dampers adjusted by means of Brass Chains over Brass Pulleys. All working parts *absolutely Non-Corrosive*.

9th. Dust settling on Dampers is discharged on *outside*, not *inside* of building.

10th. A semi-mechanical ventilator operating without any mechanical energy. Designed and built by Engineers and sold at a very reasonable price.

The Ohio Blower Co. Cleveland

Write Today

SWARTWOUT TYPE Ventilators, Induction Type Ventilators,
and Stationary Blowers, Motors, Blower, Fan

Its remarkable efficiency insures adequate ventilation with fewer or smaller ventilators.

Durability is guaranteed by superior material. Consequently you are assured of better results at lower ultimate cost.

Perfect ventilation means increased labor efficiency—more actual productive labor.

The removal of impure air, gases, smoke, vapors, etc., reduces the danger of accidents and liability of Employers for damages.

Further, the counter weights are placed on the outside of the ventilator. Hence all danger to workmen is eliminated.

The self-cleaning glass top acts as a skylight—reduces lighting bills.

As you no doubt know, Engineers concede that the Rotary—or Induction—type of ventilator is more efficient than the Stationary type. But a common cause for complaint has been that the journals would become corroded and stick, rendering the ventilator inoperative.

In the "Swartwout" Rotary Ball Bearing Ventilator this objection has been entirely overcome. It was designed and built by Engineers: men who recognize that constant and continuous service is *the* essential in a ventilator. Consequently the very best journal that engineering science has developed is used in the "Swartwout." These journals are made of regular trolley metal—hard phosphor bronze bearings fitted with a "special composition" of Bell Metal Ball are positively **NON-CORROSIVE UNDER ALL CONDITIONS.**

We have had over 25 years practical experience in Mechanical Ventilation and our Engineering Department will gladly study your ventilation problems and make suggestions without obligation. Fill out the post card attached and mail today.

The Gospel of Fresh Air

A Few of More Installations

- Anheuser-Busch Brewing Co.,
St. Louis, Mo.
- Crane Valve Co.,
Bridgeport, Conn. Two Orders
- Sanitary Can Company,
Fairport, N. Y.
- Fred A. Jones Building Co.,
Galveston, Texas.
- Lehigh Valley Coal Co.,
Audenried, Pa.
- Winslow Bros. & Smith Co.,
Winslows, Mass.
- Carnegie Steel Co.,
Baltimore, Md. Three Orders
- United Steel Co.,
Canton, Ohio.
- H. H. Sanders & Son,
Beaumont, Texas.
- American Milk Company,
Whitewater, Wis.
- Pittsburgh Clay Pot Co.,
Pittsburgh, Pa.
- Walden Knife Company,
Walden, N. Y. 27 Ventilators
- Columbia Chemical Co.,
Barberton, Ohio.
- Illinois Central Railroad,
Clinton, Ill.
- National Carbon Company,
Fostoria, Ohio. Three Orders
- Port Arthur Light & Power Co.,
Port Arthur, Texas.
- Craig & Brown,
Brooklyn, N. Y.
- Bethlehem Steel Co.,
South Bethlehem, Pa. Ten Orders
- The Star Porcelain Co.,
Trenton, N. J.
- Pittsburgh Plate Glass Co.,
Ford City, Pa. Two Orders
- R. B. Green,
Tilden, Neb.
- B. F. Goodrich Co.,
Akron, Ohio.
- Cleveland Construction Co.,
Cleveland, Ohio. Five Orders
- Caplan Galv'd Iron Cornice Co.,
St. Louis, Mo.
- Pennsylvania Salt Mfg. Co.,
Wyandotte, Michigan. Five Orders

The Ohio Blower Co., Cleveland

Cleveland Railway Co.,
 Cleveland, Ohio. *See Appendix*
 Morrill Leather Co.,
 Peabody, Mass.
 Windsor Print Works,
 North Adams, Mass.
 Hoffmann-Youmans Paper Mills
 Baldwinsville, N. Y.
 Dupont Silk Company,
 Avoca, Pa.
 Corning Glass Works,
 Corning, N. Y.
 Monroe Steam Laundry Co.,
 Chicago, Ill.
 New York Dock Co.,
 Brooklyn, N. Y.
 Wm. F. Schaefer, Inc.,
 Newark, N. J.
 Berlin Construction Co.,
 Waterbury, Conn.
 J. A. Spencer,
 Dwight, Ill.
 Harrison Sewage Disposal W'ks.
 Harrison, N. Y.
 Haglin-Stahr Building,
 Minneapolis, Minn.
 Galveston Cotton Compress &
 Warehouse Co.,
 Galveston, Texas.
 John Siddons Co.,
 Rochester, N. Y.
 Michigan Reformatory,
 Ionia, Mich.
 Spiro Roofing & Heating Co.,
 Birmingham, Ala.
 Johnston Harvester Co.,
 Batavia, N. Y.
 Welshach Co.,
 Gloucester City, N. J.
 Samuel B. Wiedeman,
 Harrisburg, Pa.
 Crucible Steel Co.
 Pittsburg and Syracuse, N. Y. *See Appendix*
 Hollingsworth & Whitney Co.,
 Waterville, Maine. *See Appendix*
 National Poultry & Egg Co.,
 Falls City, Neb.
 Blumenthal Bros.,
 Galveston, Texas.

The Gospel of Fresh Air

A List of More Installations

John Lauck & Sons,
Indianapolis, Ind.
Hamilton Clay Mfg. Co.,
Hamilton, Ill. 30 Ventilators
J. T. Booth,
Little Rock, Ark.
Henry Weis Cornice Co.,
Kansas City, Mo. Kansas City
Union Station
Collinsville Mfg. Co.,
Cleburne, Texas.
Imperial Mercantile Co.,
Sugarland, Texas.
Hanson Mfg. Co.,
Dallas, Texas.
Union Steel Castings Co.,
Pittsburgh, Pa.
International Harvester Co.,
Chicago, Ill.
The Arlington Co.,
Arlington, N. J.
American Can Co.,
Brooklyn, N. Y. Four Orders
Aetna Paper Co.,
Dayton, Ohio. Three Orders
Agasote Millboard Co.,
Trenton, N. J.
Edison Illuminating Co.,
Detroit, Mich. Eight Orders
Horlick's Malted Milk Co.,
Racine, Wis. Three Orders
International Heater Co.,
Utica, N. Y. Three Orders
Ingersoll-Rand Co.,
Phillipsburg, N. J. Four Orders
Loose-Wiles Biscuit Co.,
Kansas City, Mo.
Ralston Steel Car Co.,
Columbus, Ohio. 84 Ventilators
Standard Oil Co.,
New York City.
The Garford Co.,
Elyria, Ohio. Three Orders
The Pepperell Mfg. Co.,
Biddeford, Maine.
The Odorless Refrigerator Co.,
Chattanooga, Tenn.
Champion Coated Paper Co.,
Hamilton, Ohio.

The Ohio Blower Co. Cleveland

| | |
|---------------------------------|--|
| The Oneida Community, | |
| Oneida, N. Y. | |
| Reliance Brick and Tile Co., | |
| Belle Plaine, Ia. | 84 Ventilators |
| The French & Hecht Co., | |
| Davenport, Iowa. | |
| Seattle Public Schools, | |
| Seattle, Wash. | Six Schools |
| Buckeye Steel Castings Co., | |
| Columbus, Ohio. | |
| Clair F. Limbeck, | |
| Ossian, Iowa. | 6-8" — Glass Top |
| Kuhns Bros., | 6-30" and 1-12" — Four Ventilators Theater |
| American Iron & Steel Mfg. Co., | |
| Lebanon, Pa. | 6-24" |
| Morris & Bailey Steel Co., | |
| Wilson, Pa. | 4-30" |
| Medina Foundry Co., | |
| Medina, Ohio. | 1-30" |
| Clarinda State Hospital, | |
| Clarinda, Iowa. | 1-30" — Copper |
| Cudahy Packing Co., | |
| South Omaha, Neb. | 1-30" |
| Wm. Foulds Co., Inc., | |
| Manchester, Conn. | 1-30" |
| Renfrew Manufacturing Co., | |
| Renfrew, Mass. | 19-23" |
| Boston & Maine R. R. Co., | |
| Mechanicsville, N. Y. | 4-24" 7-36" |
| General Electric Co., | |
| Schenectady, N. Y. | First Order 1-30" Second Order 1-36" and 2-60" |
| Swift & Co., | |
| Chicago, Ill. | |
| Larkin Co., | |
| Buffalo, N. Y. | |

